

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
Fact Sheet No. 7 For Dairies**

Construction of Animal Waste Holding Ponds

Introduction

The State of California has laws and regulations that apply to the design and construction of holding ponds used for storage of animal wastes. The Professional Engineers Act (Business and Professions Code Sections 6700-6799) and the California Code of Regulations (CCR) Title 16, Sections 400-474.5 identify activities that are considered civil engineering including "studies or activities in connection with fixed works for irrigation (and) drainage ." The Board of Registration for Professional Engineers and Land Surveyors considers the design of holding ponds for animal wastes to be civil engineering.

In addition, the General Construction Criteria for Class II Waste Management units in CCR Title 27, Division 2, Section 20310(e) states that "Containment structures shall be designed by, and construction shall be supervised and certified by, a registered civil engineer or certified engineering geologist (CEG)." Staff from the State Board of Registration for Geologists and Geophysicists has stated that a CEG can design holding ponds for animal waste.

It is unlawful for anyone to practice or offer to practice civil engineering unless currently registered by the Board of Registration. However, an unregistered or unlicensed person is allowed to perform civil engineering services if the person is:

- a federal officer or employee, or
- under the responsible charge and direct supervision of a registered professional engineer.

Additional regulations that apply to design requirements for holding ponds utilized for animal wastes are contained in CCR Title 27, Subdivision 1, Chapter 7, Subchapter 2, Article 1, Section 22562. These regulations require that such ponds be protected from stream-channel overflows during 100-year peak flows. They also require ponds to be lined with, or underlain by, soils which contain at least 10 percent clay and not more than 10 percent gravel or be lined with artificial materials of equivalent impermeability. Information on evaluating the clay content of holding ponds is presented in the Central Valley Regional Water Quality Control Board's ("Regional Board's") Fact Sheet No. 6 For Dairies "Evaluating Proposed Waste Holding Pond Sites." When lining is necessary, the Regional Board requires that a registered civil engineer design the liner and certify that it complies with the state regulations.

Design of Animal Waste Holding Ponds

The design of animal waste holding ponds is largely dependent on site-specific conditions including the depth to groundwater and the soil type. As discussed in Regional Board Fact Sheet No. 5 "Soil And Groundwater Assessments For Dairies," an initial assessment of site conditions may be performed before the pond design is finalized and construction is started. If the pond will include a liner, the liner type may influence the shape and depth of the pond excavation. If a lined pond will be mechanically cleaned, the pond design should consider the need to protect the liner. The pond design should also meet local requirements such as mosquito abatement district requirements for access and planning department requirements for setbacks from wells, housing, and property lines. There may also be applicable regulations that specify the minimum separation between the base of the pond and highest anticipated groundwater.

Construction of Animal Waste Holding Ponds

The actual construction of an animal waste holding pond may be done by a contractor that is not a registered civil engineer. However, the contractor cannot perform the duties of a civil engineer including:

- the selection and comparison of engineering alternatives;
- the selection or development of design standards or methods, and materials to be used;
- the selection or development of techniques or methods of testing to be used in the evaluation of construction methods or controls;
- the evaluation of test results, materials, and workmanship affecting the integrity of the completed work; or
- the development and control of operating and maintenance procedures.

Documentation of Pond Construction and Operation

The facility owner should retain records documenting that animal waste holding ponds are adequately constructed and maintained. Such documentation includes

- any report describing assessments of soil and groundwater conditions in the vicinity of the pond prior to the start of pond construction;
- a report summarizing the sampling procedures and the reported analytical results for soil samples collected from the pond excavation and from any clay liner used in the pond;
- engineering specifications for the pond and, if applicable, the pond liner and an engineers description of any maintenance activities necessary to maintain the pond integrity;
- documentation that the pond was constructed according to the design specifications. Such documentation may include photographs, inspection logs, test results documenting proper construction of any liner, and an engineer's statement describing the completed pond;
- documentation that the pond has been maintained according to the design specifications. Such documentation may include inspection logs and records of pond cleaning and maintenance activities.

Contacts for Further Information

For more information about the water quality programs that apply to confined animal facilities in the Central Valley, contact Regional Board dairy regulatory staff at the following offices:

- Sacramento (916) 255-3000
- Fresno (559) 445-5116
- Redding (916) 224-4845